

## PATENT ASSIGNMENT COVER SHEET

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<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
CHENCHEN ZHU	09/07/2017
KHOA LUU	09/07/2017
MARIOS SAVVIDES	09/08/2017
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	CARNEGIE MELLON UNIVERSITY
<b>Street Address:</b>	5000 FORBES AVENUE
<b>City:</b>	PITTSBURGH
<b>State/Country:</b>	PENNSYLVANIA
<b>Postal Code:</b>	15213
<b>PROPERTY NUMBERS Total: 2</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	15697015
<b>Application Number:</b>	62495216
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(802)862-7512
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>	
<b>Phone:</b>	802-863-2375
<b>Email:</b>	patip@drm.com
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<b>ATTORNEY DOCKET NUMBER:</b>	13556-046USU1
<b>NAME OF SUBMITTER:</b>	MORGAN S. HELLER II
<b>SIGNATURE:</b>	/Morgan S. Heller II/
<b>DATE SIGNED:</b>	09/26/2017
<b>Total Attachments: 3</b>	
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source=Assignments_13556046USU1#page2.tif	



ASSIGNMENT

Whereas, I, **Chenchen Zhu**, residing in **Pittsburgh, PA**, have invented one or more new and useful inventions and have filed U.S. Nonprovisional Patent Application Serial No. 15/697,015, filed on September 6, 2017, entitled "Methods and Software For Detecting Objects in an Image Using Contextual Multiscale Fast Region-Based Convolutional Neural Network," and U.S. Provisional Patent Application No. 62/495,216, filed on September 6, 2016, entitled "Very Deep Neural Network with Auto Context R-CNN for Object Detection and Auto Context R-CNN for Unconstrained Face Detection", (hereinafter, "Application(s)");

And whereas, Carnegie Mellon University, a Pennsylvania Non-Profit Corporation, having a place of business at 5000 Forbes Avenue, Pittsburgh, PA 15213 (hereinafter called Assignee), desires to acquire the entire right, title and interest in the Application(s) and all inventions disclosed therein, and to any United States and foreign patents to be obtained therefor, and to any United States, international, and foreign patent applications to be filed thereon;

Now therefore, for good and valuable consideration, receipt whereof is hereby acknowledged, I, the above-named inventor hereby sell, assign, and transfer to Assignee, its successors and assigns, and confirm any previous assignments made by me for, the entire right, title and interest in the Application(s) and inventions therein disclosed for the United States and foreign countries, including all provisional applications relating thereto, all divisional applications, renewal applications, continuation applications, continuation-in-part applications, and design applications thereof, and all issued patents which may have been granted or may be granted hereafter thereon, and all reissues, renewals, reexaminations, and extensions to any of the foregoing and all patents issuing thereon, and all rights of priority resulting from any of the foregoing.

And I hereby agree that Assignee may file one or more international applications and apply for foreign Letters Patent on said inventions; and I request the Commissioner for Patents of the United States Patent and Trademark Office and the authorized official in each respective foreign patent office to issue any Letters Patent granted upon the inventions set forth in the Application(s) to Assignee; and I will execute all papers necessary in connection with the United States, international, and foreign applications when called upon to do so by Assignee.

I, the above-named, hereby covenant that no assignment, sale, agreement, or encumbrance has been or will be made or entered into which would conflict with this Assignment.

Executed at Pittsburgh (city/town), PA (state/country),

this 14 day of Sept., 2017.

Chenchen Zhu  
Chenchen Zhu

17759944.1

ASSIGNMENT

Whereas, I, **Khoa Luu**, residing in **Pittsburgh, PA**, have invented one or more new and useful inventions and have filed U.S. Nonprovisional Patent Application Serial No. 15/697,015, filed on September 6, 2017, entitled "Methods and Software For Detecting Objects in an Image Using Contextual Multiscale Fast Region-Based Convolutional Neural Network," and U.S. Provisional Patent Application No. 62/495,216, filed on September 6, 2016, entitled "Very Deep Neural Network with Auto Context R-CNN for Object Detection and Auto Context R-CNN for Unconstrained Face Detection", (hereinafter, "Application(s)");

And whereas, Carnegie Mellon University, a Pennsylvania Non-Profit Corporation, having a place of business at 5000 Forbes Avenue, Pittsburgh, PA 15213 (hereinafter called Assignee), desires to acquire the entire right, title and interest in the Application(s) and all inventions disclosed therein, and to any United States and foreign patents to be obtained therefor, and to any United States, international, and foreign patent applications to be filed thereon;

Now therefore, for good and valuable consideration, receipt whereof is hereby acknowledged, I, the above-named inventor hereby sell, assign, and transfer to Assignee, its successors and assigns, and confirm any previous assignments made by me for, the entire right, title and interest in the Application(s) and inventions therein disclosed for the United States and foreign countries, including all provisional applications relating thereto, all divisional applications, renewal applications, continuation applications, continuation-in-part applications, and design applications thereof, and all issued patents which may have been granted or may be granted hereafter thereon, and all reissues, renewals, reexaminations, and extensions to any of the foregoing and all patents issuing thereon, and all rights of priority resulting from any of the foregoing.

And I hereby agree that Assignee may file one or more international applications and apply for foreign Letters Patent on said inventions; and I request the Commissioner for Patents of the United States Patent and Trademark Office and the authorized official in each respective foreign patent office to issue any Letters Patent granted upon the inventions set forth in the Application(s) to Assignee; and I will execute all papers necessary in connection with the United States, international, and foreign applications when called upon to do so by Assignee.

I, the above-named, hereby covenant that no assignment, sale, agreement, or encumbrance has been or will be made or entered into which would conflict with this Assignment.

Executed at Pittsburgh (city/town), PA (state/country),

this 03 day of September, 2017.

  
Khoa Luu

17759943.1

ASSIGNMENT

Whereas, I, **Marios Savvides**, residing in **Pittsburgh, PA**, have invented one or more new and useful inventions and have filed U.S. Nonprovisional Patent Application Serial No. 15/697,015, filed on September 6, 2017, entitled "Methods and Software For Detecting Objects in an Image Using Contextual Multiscale Fast Region-Based Convolutional Neural Network," and U.S. Provisional Patent Application No. 62/495,216, filed on September 6, 2016, entitled "Very Deep Neural Network with Auto Context R-CNN for Object Detection and Auto Context R-CNN for Unconstrained Face Detection", (hereinafter, "Application(s)");

And whereas, Carnegie Mellon University, a Pennsylvania Non-Profit Corporation, having a place of business at 5000 Forbes Avenue, Pittsburgh, PA 15213 (hereinafter called Assignee), desires to acquire the entire right, title and interest in the Application(s) and all inventions disclosed therein, and to any United States and foreign patents to be obtained therefor, and to any United States, international, and foreign patent applications to be filed thereon;

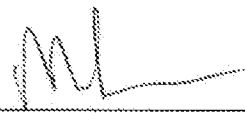
Now therefore, for good and valuable consideration, receipt whereof is hereby acknowledged, I, the above-named inventor hereby sell, assign, and transfer to Assignee, its successors and assigns, and confirm any previous assignments made by me for, the entire right, title and interest in the Application(s) and inventions therein disclosed for the United States and foreign countries, including all provisional applications relating thereto, all divisional applications, renewal applications, continuation applications, continuation-in-part applications, and design applications thereof, and all issued patents which may have been granted or may be granted hereafter thereon, and all reissues, renewals, reexaminations, and extensions to any of the foregoing and all patents issuing thereon, and all rights of priority resulting from any of the foregoing.

And I hereby agree that Assignee may file one or more international applications and apply for foreign Letters Patent on said inventions; and I request the Commissioner for Patents of the United States Patent and Trademark Office and the authorized official in each respective foreign patent office to issue any Letters Patent granted upon the inventions set forth in the Application(s) to Assignee; and I will execute all papers necessary in connection with the United States, international, and foreign applications when called upon to do so by Assignee.

I, the above-named, hereby covenant that no assignment, sale, agreement, or encumbrance has been or will be made or entered into which would conflict with this Assignment.

Executed at Pittsburgh (city/town), PA (state/country),

this 08 day of Sept, 2017.

  
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**Marios Savvides**

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